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CBCS SCHEME

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18MN33

Third Semester B.E. Degree Examination, Dec.2019/Jan.2020
Mine Surveying – I

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-1

1 a. A 30 m chain was found to be 0.15m too long after chaining a distance of 5000m. It was found to be 0.3m too long after measuring a total distance of 10000m. At the start of the work, the chain was tested and was found to be exactly 30m in length. Find out the correct length of the measured distance. **(10 Marks)**

b. It was not possible to continue the chain line because of a pond. Hence, stations P&T were marked on the opposite sides of the pond and the lines PQ and PR were selected on left hand side and right hand side of PT respectively sothat points Q, T and R are in a straight line. Following distances were measured PQ = 150m, PR = 230m, QT = 75m, RT = 100m. Find out the length PT. **(10 Marks)**

OR

2 a. It was decided to obtain horizontal distance in a forest area using chain / tape. Discuss the type of obstacle to chaining and explain the procedure to measure the distance for the same. **(10 Marks)**

b. A chain line PQR crosses a river. The points Q & R are on the near and distant banks respectively. A line QS of 80m is set out at right angles to the chain line at Q. The bearings of S to the stations R & Q were 65° and 110° respectively. Find out the width of the river. **(10 Marks)**

Module-2

3 a. Calculate the included angles A, B & C of a triangle from the following data:

Side	F.B	B.B
AB	45°	225°
BC	130°	310°
CA	270°	90°

(10 Marks)

b. Following are the co-ordinates of lines AB, BC, CD and DA in a theodolite traversing. Adjust the traverse by applying the transit rule.

Line	Lat	Dep
AB	123.35	35.68
BC	93.82	205.68
CD	-177.44	70.11
DA	-39.21	-312.25

(10 Marks)

OR

4 a. Calculate the independent coordinates for the above problem, if the coordinates of station A are (200, 350). **(06 Marks)**

b. Correct the following bearings taken in a compass survey for a closed traverse ABCDE for the observational errors:

Line	F.B	B.B
AB	83°	260°
BC	141°	320°
CD	170°	350°
DE	240°	58°
EA	328°	153°

(14 Marks)

Module-3

5 a. Following consecutive staff readings were taken with a level along a sloping ground line AB at a regular distance of 20m by using 4m leveling staff:
0.352, 0.787, 1.832, 2.956, 3.758, 0.953, 1.756, 2.738, 3.872, 0.812, 2.325 & 3.137.
Rule out a page of level field book and enter the above readings R.L. of point A is 320.288. Calculate R.L. of all points by rise and fall system and work out the gradient of line AB. **(10 Marks)**

b. Determine the effect of curvature and refraction. **(10 Marks)**

OR

6 a. Following consecutive readings were taken on a continuously sloping ground at 30m interval with a dumpy level and 4m leveling staff 0.585 on A, 0.936, 1.953, 2.846, 3.644, 3.938, 0.962, 1.035, 1.035, 1.089, 2.534, 3.844, 0.956, 1.579, 3.016 on B. The elevation of A was 520.450m.
(i) Prepare a page of level book. (ii) Calculate the R.L. of all points by R & F method
(iii) Determine the gradient of line AB (iv) Checks. **(14 Marks)**

b. Calculate the correction due to curvature and refraction if the distance between P & Q is 1200 m. **(06 Marks)**

Module-4

7 a. Explain the characteristics of contours with suitable sketch. **(10 Marks)**

b. Explain radiation method of plane table surveying. **(10 Marks)**

OR

8 a. Explain the indirect method of locating contours. **(10 Marks)**

b. Explain Intersection method of Plane Table Surveying. **(10 Marks)**

Module-5

9 a. Explain the method of determining area by offsets at equal intervals. **(10 Marks)**

b. Following perpendiculars offsets were taken from a chain line to a curved boundary line at intervals of 10 m:
0, 7.83, 5.26, 6.45, 7.33, 7.87, 8.23, 0.
Compute the area between the chain line, the curved boundary line and the end offsets by (i) Average ordinate rule (ii) Trapezoidal rule (iii) Simpson's rule. **(10 Marks)**

OR

10 a. Explain the method of determining volume by (i) Spot level method (ii) Contour. **(10 Marks)**

b. Calculate the volume of earth work by the use prismoidal formula for a proposed road of formation width 10m. The length of road is 60m and the cross-sections of the road at distance 0, 30 and 60m are shown in Fig.Q10(b). The ground is sloping in transverse direction as shown in figure. **(10 Marks)**

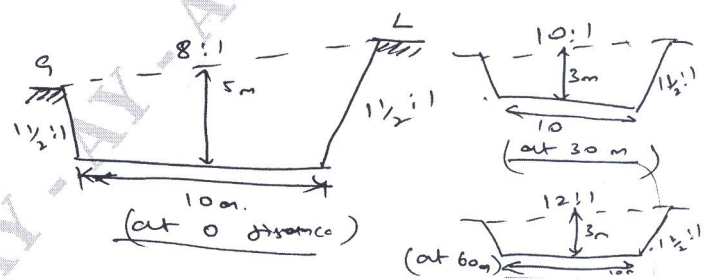

Fig.Q10(b)

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